Manchester College STEM session

Students from Manchester College recently took part in an exciting, hands-on STEM session with Mersey Rivers Trust, exploring water quality across the Mersey catchment. From the River Tame through the River Mersey to the Mersey Estuary, learners investigated how water quality varies between different sources and locations.

Exploring Key Water Quality Indicators

During the session, students focused on several critical indicators of river health:

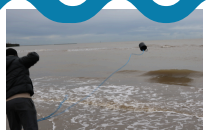
- Conductivity: Measuring the water's ability to carry an electric current, which reflects the presence of dissolved salts and minerals.
- pH: Determining whether the water is acidic, neutral, or alkaline, which can affect aquatic life.
- Temperature: Recording water temperature to understand its influence on biological activity and chemical processes.
- Phosphate: Measuring nutrient levels that can indicate pollution from agricultural or urban runoff.
- Ammonia: Detecting the presence of nitrogen compounds, which can be toxic to aquatic organisms at high concentrations.




Hands on Fieldwork

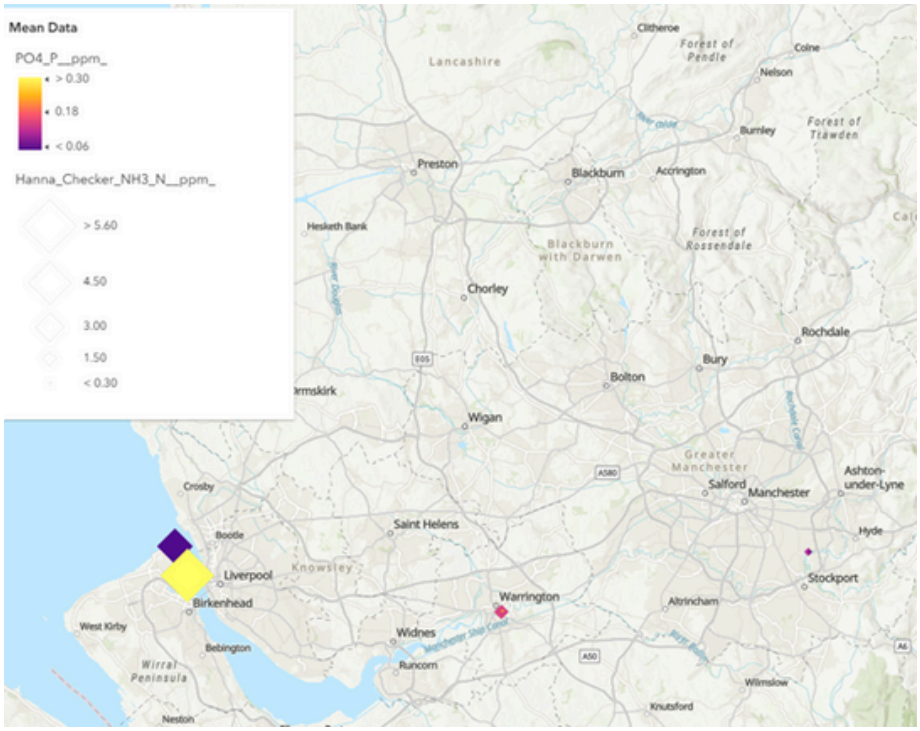
Students collected samples at multiple points along the catchment and performed tests using professional equipment, including Hanna Checkers for chemical analysis and conductivity meters. They also examined the samples under microscopes, identifying macroinvertebrates and other indicators of river health.

This practical approach allowed learners to see firsthand how water quality varies between different parts of a river system, from tributaries to the main river and out into the estuary. For example, differences in conductivity and nutrient levels highlighted the impact of urban areas, agricultural runoff, and tidal influences on water chemistry.


info@merseyrivers.org
www.merseyrivers.org

Manchester College STEM session



The students found

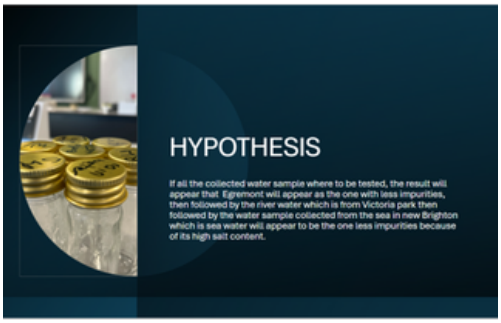
As the river flows downstream, NH_3-N concentrations generally increase as the river collects inputs from tributaries, urban areas, and agricultural land. This downstream build-up reflects the cumulative effect of activities across the catchment. Near the coast, NH_3-N levels decrease as the river is diluted by seawater.

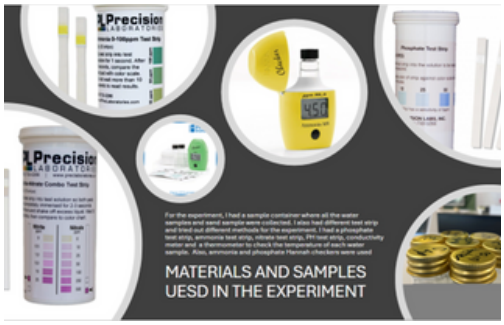
A similar downstream pattern is typically observed for PO_4-P, with concentrations increasing through developed and farmed areas before declining near the river mouth due to dilution and mixing with coastal waters.

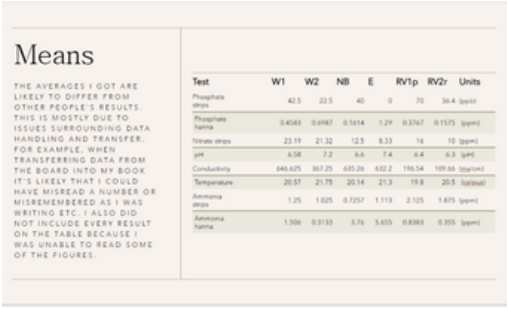
Linking STEM Learning to Real-world Science

The session connected classroom theory to real-world environmental science, reinforcing concepts from chemistry, biology, and environmental studies. Students gained experience in:

- Scientific sampling and data collection
- Data analysis and interpretation
- Understanding the impacts of human activity on river ecosystems
- Developing problem-solving and critical thinking skills







Making a Difference

By engaging with the Mersey Rivers Trust STEM session, Manchester College students contributed to a larger citizen-science effort, helping monitor river health and support conservation initiatives. These insights provide valuable data for managing water quality across the catchment and inspire the next generation of environmental scientists and river guardians.





info@merseyrivers.org
www.merseyrivers.org